

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



28 MAR 2005



(43) International Publication Date
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number
WO 2004/029135 A2

(51) International Patent Classification⁷:
C08L 89/00

C08H 1/00,

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(21) International Application Number:

PCT/BE2003/000163

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:

26 September 2003 (26.09.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0222257.8 26 September 2002 (26.09.2002) GB
0318775.4 8 August 2003 (08.08.2003) GB

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

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Published:

— *without international search report and to be republished
upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: GLUTEN BIOPOLYMERS

(57) Abstract: This invention consists of a modified gluten biopolymer for use in industrial applications, such as composites and foams. In the present work, the fracture toughness of the gluten polymer was improved with the addition of a thiol-containing modifying agent. This work also resulted in the development of a gluten biopolymer-modified fiber bundle, demonstrating the potential to process fully biodegradable composite materials. Qualitative analysis suggests that a reasonably strong interface between the natural fibers and biopolymer matrix can form spontaneously under the proper conditions. Therefore this invention relates to a modified gluten biopolymer for use in industrial applications, such as composites, stabilized foams and molded articles of manufactures. The present invention relates to a new gluten based biopolymer with modified properties, such as an increase in impact strength, and prepared by using thiol-containing molecules. The multifunctional activity of the polythiol-containing molecules generates the potential for the development of a new material base for commodity plastics. The invention furthermore relates to a new composite material comprising gluten-coated fiber, its use and the method for preparing the composite material.



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